

WHAT IS CLAIMED IS:

1           1. A method of self-programming a graphics processing unit (GPU), the  
2 method comprising:

3                 receiving from the CPU a blit instruction defining a blit operation; and  
4                 storing a first control value in a control register using the blit operation,  
5 wherein the first control value in the control register determines the behavior of the GPU.

1           2. The method of claim 1, further comprising applying the blit operation  
2 to a second control value to determine the first control value.

1           3. The method of claim 2, wherein the second control value is stored in a  
2 memory.

1           4. The method of claim 3, wherein the memory is a second control  
2 register.

1           5. The method of claim 3, wherein the second control value is stored in a  
2 table of control values accessed by an index value.

1           6. The method of claim 5, further comprising changing the index value to  
2 access a third control value in the table following the blit operation.

1           7. The method of claim 2, wherein the second control value is a starting  
2 memory address for a display buffer.

1           8. The method of claim 2, wherein the second control value is a clip plane  
2 distance.

1           9. The method of claim 8, wherein the second control value is greater  
2 than the depth extent of an object.

1           10. The method of claim 1, wherein the blit operation includes a colorkey  
2 operation.

1           11. The method of claim 1, wherein the blit operation includes a logic  
2 operation on the first control value.

1                   12. The method of claim 1, wherein the blit operation includes a pattern  
2 copy operation.

1                   13. The method of claim 2, wherein the first control value is a copy of the  
2 second control value.

1                   14. The method of claim 1, wherein receiving comprises reading a blit  
2 instruction from a command buffer asynchronously with the CPU.

1                   15. A graphics rendering system comprising:  
2                    a central processing unit;  
3                    a graphics processing unit adapted to create graphics data in response to a  
4                    graphics command, wherein the graphics processing unit has a control register and a blit  
5                    engine; and  
6                    a command buffer adapted to receive at least a first graphics command  
7                    from the central processing unit and further adapted to communicate the first graphics  
8                    command to the graphics processing unit;  
9                    wherein, the blit engine is adapted to store a first control value in the  
10                  control register in response to the first graphics command.

1                   16. The graphics rendering system of claim 15, wherein the blit engine is  
2 adapted to apply a blit operation to a second control value to determine the first control value.

1                   17. The graphics rendering system of claim 16, further comprising a  
2 memory adapted to store the second control value.

1                   18. The graphics rendering system of claim 17, wherein the memory is a  
2 second control register.

1                   19. The graphics rendering system of claim 17, wherein the memory  
2 comprises a table of control values including the second control value and accessed by an  
3 index value.

1                   20. The graphics rendering system of 16, wherein the second control value  
2 is a starting memory address for a display buffer.

1                   21. The graphics rendering system of claim 16, wherein the second control  
2 value is a clip plane distance.

1                   22. The graphics rendering system of claim 16, wherein the blit engine is  
2 adapted to perform a colorkey operation on the second control value.

1                   23. The graphics rendering system of claim 15, wherein the blit engine is  
2 adapted to perform a logic operation on the first control value.

1                   24. A method of self-programming a graphics processing unit (GPU) using  
2 a set of GPU commands created by a driver, the method comprising:  
3                   writing a first set of rendering commands to a command buffer;  
4                   writing a set of self-programming commands including a blit instruction to the  
5 command buffer; and  
6                   writing a second set of rendering commands to the command buffer.

1                   25. The method of claim 24, wherein the first set of rendering commands,  
2 the set of self-programming commands, and the second set of rendering commands are  
3 written sequentially to the command buffer.

1                   26. The method of claim 24, wherein the first set of rendering commands  
2 is associated with a first image to be rendered to a first display buffer, the second set of  
3 rendering commands is associated with a second image to be rendered to a second display  
4 buffer, and the set of self-programming commands is adapted to instruct the GPU to display  
5 the first image.

1                   27. The method of claim 26, wherein the blit instruction is adapted to store  
2 a memory address associated with the first display buffer in a control register of the GPU.

1                   28. The method of claim 24, wherein the first set of rendering commands  
2 is associated with a bounding box associated with an object and the second set of rendering  
3 commands is associated with the object; and further wherein the set of self-programming  
4 commands is adapted to instruct the GPU to evaluate the visibility of the bounding box and to  
5 optionally bypass the rendering of the object in response to the evaluation of the visibility of  
6 the bounding box.

1                   29.     The method of claim 28, wherein the blit instruction includes a  
2     colorkey operation on a register of the GPU.

1                   30.     The method of claim 29, wherein the register of the GPU is a rendered  
2     pixel count register.

1                   31.     The method of claim 29, wherein the blit instruction is adapted to store  
2     a control value in a control register in response to the colorkey operation, and wherein the  
3     control value is adapted to instruct the GPU to abort the processing of the second set of  
4     rendering commands.

1                   32.     The method of claim 31, wherein the control value is a clip plane  
2     distance.

1                   33.     An information storage medium having a set of instructions adapted to  
2     direct an information processing device in communication with a graphics processing unit  
3     (GPU) to perform the steps of:

4                         writing a first set of rendering commands to a command buffer;  
5                         writing a set of self-programming commands including a blit instruction to the  
6     command buffer; and  
7                         writing a second set of rendering commands to the command buffer.

1                   34.     The information storage medium of claim 33, wherein the first set of  
2     rendering commands, the set of self-programming commands, and the second set of rendering  
3     commands are written sequentially to the command buffer.

1                   35.     The information storage medium of claim 33, wherein the first set of  
2     rendering commands is associated with a first image to be rendered to a first display buffer,  
3     the second set of rendering commands is associated with a second image to be rendered to a  
4     second display buffer, and the set of self-programming commands is adapted to instruct the  
5     GPU to display the first image.

1                   36.     The information storage medium of claim 35, wherein the blit  
2     instruction is adapted to store a memory address associated with the first display buffer in a  
3     control register of the GPU.

1               37. The information storage medium of claim 33, wherein the first set of  
2 rendering commands is associated with a bounding box associated with an object and the  
3 second set of rendering commands is associated with the object; and further wherein the set  
4 of self-programming commands is adapted to instruct the GPU to evaluate the visibility of the  
5 bounding box and to optionally bypass the rendering of the object in response to the  
6 evaluation of the visibility of the bounding box.

1               38. The information storage medium of claim 37, wherein the blit  
2 instruction includes a colorkey operation on a register of the GPU.

1               39. The information storage medium of claim 38, wherein the register of  
2 the GPU is a rendered pixel count register.

1               40. The information storage medium of claim 38, wherein the blit  
2 instruction is adapted to store a control value in a control register in response to the colorkey  
3 operation, and wherein the control value is adapted to instruct the GPU to abort the  
4 processing of the second set of rendering commands.

1               41. The information storage medium of claim 40, wherein the control  
2 value is a clip plane distance.